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and maturely dissected. It is because the forms present so many similarities to drumlins and yet differ from them in these several respects that the name drumlinoid has been given them.

They may represent a new phase of the drumlin and emphasize further the belief that we are at present including under the term drumlin several distinct forms with perhaps as many origins. Since our drumlinoids are apparently due to ice erosion in soft till, mainly valley filling, this study may be a contribution to the general problem of the origin of some of the drumlins of the more classic areas.

NOTE.—I have noticed in some of the Swiss topographic maps the description of forms in the Swiss valleys similar to these drumlinoids which offer an inviting field for study, and possibly present material which when studied will yield a valuable contribution to the present problem.

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THE LEARDO MAP OF 1452.

Giovanni Leardo was a Venetian cosmographer, who lived in the fifteenth century and remained unknown, except by name and tradition, for four hundred years.

In 1850 Signor Vincenzo Lazari discovered in the Museum of Vicenza a planisphere, or map of the world, which bore the signature: *Johanes Leardus de Venetiis me fecit ab anno domini 1448*. Lazari sent a description and a drawing of the map to Santarem, who published the description, with critical remarks, in his *Essai sur l'Histoire de la Cosmographie, etc.* (Tome 3, pp. 398-442), and printed a facsimile of the drawing in his Atlas.

In 1879 Friedrich von Pilat, Consul-General for Austria-Hungary in Venice, purchased from a private collection in that city a map of the world on parchment, with the inscription:

Johanes Leardus de venetteis me fecit abano domini 1452.

A description of this map was read before the R. Istituto Veneto di Scienze, Lettere ed Arti in 1880 by Dr. Guglielmo Berchet*, and printed in pamphlet form the same year by Ferdinando Ongania, of Venice, to accompany the photographic reproduction of the map in the Collection of Italian Charts and Maps of the Middle Ages published by him. The parchment on which the map is drawn is 60 centimeters wide (23 $\frac{5}{8}$ in.)

* The facts here given are taken from Dr. Berchet's paper.

and 73 centimeters from top to bottom ($28\frac{3}{4}$ in.). At the top is the chevron of the Trevisan family.

At the bottom of the parchment a strip, $3\frac{1}{2}$ in. high, contains the legend, with the signature of the author and the date.

Above this strip is a parallelogram, enclosing ten concentric circles drawn around the map, which occupies the centre.

The inscriptions are not easily read, the writing having faded in many places and the parchment having suffered in others.

The legend begins with a reference to the Creator and the Passion, and then gives the diameter of the earth, "according to the excellent astrologer and geometrician Macrobius," as 6,857 miles, which happens to be not far from the actual measurement of 6,876 nautical miles.

Leardo then gives the diameter of the Moon, of Mercury, Venus, Mars, the Sun, and Saturn, as well as that of the universe and the crystal sphere; all wholly fanciful.

The innermost of the ten circles shows Easter Day for 95 years, beginning with 1452.

The second circle marks the months of the year, with the signs of the zodiac.

The third circle gives the phases of the moon, according to the cycle of 19 years, distinguished by 19 letters of the alphabet.

The fourth circle is that of the days of the months.

The fifth circle is that of the hours.

The sixth circle is that of the *points* of the hours; each hour being divided into 1080 points, or instants.

The seventh circle gives the dominical letter.

The eighth circle gives the length of the days throughout the year, and in the ninth the variation from day to day is marked.

The tenth circle contains the name of the titular saint for each day of the year.

The map drawn within these circles is $15\frac{3}{4}$ inches in diameter. The east is at the top of the map and the south at the right hand of the observer.

Jerusalem is in the centre. The earth, which is quite symmetrical, is surrounded by the sea. The Gulf of Guinea on the west and a similar gulf in the east under the same parallel through Africa form pendants to two smaller gulfs in the north, the Baltic and the Sea of Okhotsk.

The names of the continents are written in red on a white ground and the islands are in red and yellow, with the exception of Ireland and England, which are green.

Europe contains 47 cities, Asia 75, Africa 74 and Ceylon (Taprobane) 4, all coloured green and red. Mountains are barely indicated; the seas are blue, except the Red Sea, which is deep red; the lakes are blue, yellow, and rose, and the rivers green and blue.

Latitude and longitude are not marked. The Mediterranean is made too long and the western coast of Europe is badly drawn, but Scotland and England form one island. The Scandinavian peninsula has a western inclination and the northern parts of Europe and Asia are depicted as *the desert uninhabited on account of cold*.

In Asia, Corea, China and India are incorrectly shown and without Japan and Formosa. On the far eastern coast a castle with two towers marks the site of the Terrestrial Paradise.

In southern Asia the Indian peninsula is less incorrect than in the Bianco map, and a noteworthy progress in knowledge is the disappearance of the great gulf between India and an eastern prolongation of Africa, still found in Bianco. With this gulf disappear also the traditionary twelve thousand islands of Marco Polo.

The southern part of Africa is a work of pure fancy, painted a fiery red beyond a band which divides the inhabited part from the *desert uninhabitable because of heat*.

The Gulf of Guinea is made mediterranean, and on the Atlantic coast of Africa the Canary Islands are shown, with the first Portuguese discoveries.

The Black Sea is fairly well drawn, though it is in the latitude of England; the Caspian has much the same shape as the Black Sea, but it is correctly shown as a closed sea and without the supposed communication with the Icy Ocean. The Red Sea, as in all the older maps, makes an angle towards the east, but it is made to begin east of Jerusalem, almost at the point of commencement of the Persian Gulf, and it reaches to Cape Guardafui. No account is taken of the strait of Bab-el-Mandeb.

There are two Niles. One flows from Ptolemy's Mountains of the Moon; the other branches from the first, forms various lakes and finds its way to the Atlantic.

The rivers are badly drawn, but less so than by Bianco and preceding cosmographers.

Leardo, like others of his time, finds place in his map for the legends current in the Middle Ages. Almost under his Terrestrial Paradise are three inscriptions: *Here they eat human flesh*; and

to the left: *Desert where there are many griffins*; and on the right: *The Thirty Days' Desert* (possibly the Desert of Gobi). Farther north, near the line of the frozen region, is a turreted temple, with the legend: *This is the sepulchre of the Great Khan, and they do this: when he is borne to his burial, he comes accompanied by many armed men, who kill those whom they meet on the road, and they say that the souls of these persons are blessed because they go with the soul of the Great Khan to another life.*

North of Scandinavia Leardo puts *the people who do not see the sun for four months in the year*; and south of Ethiopia we find the empire of Prester John and these two inscriptions: *Here are four-footed animals with human faces*; and *Here are men with faces in their breasts.*

This most interesting map was acquired in April of this year by a member of the Council and presented to the American Geographical Society.

GEOGRAPHICAL RECORD.

AFRICA.

RUWENZORI PEAK REACHED.—Almost simultaneously with the arrival in Mombasa of the Duke of the Abruzzi and his party on their way to attempt the ascent of the Ruwenzori range, the *Geographical Journal* of the Royal Geographical Society (May, 1906) announces that Mr. Rudolf Grauer, an Austrian, with the Messrs. H. W. Tegart and H. E. Maddox, members of the Church Missionary Society in Uganda, have reached one of the peaks of the Range. On Jan. 18, their camp was just below the Mubuku glacier; and as they had to return to camp every night, three days elapsed before they were able to reach the peak, which they named King Edward's Rock, the top of which is about 15,070 feet above sea-level. They were much delayed throughout their work by fogs. In their opinion, the highest peak of the range is the one to which Sir Harry Johnston gave the name Duwoni. It is not far from King Edward's Rock, and they believe it is not over 16,500 feet high. They say that this culminating point of the range can be ascended if the portorage difficulty is overcome, so that provisions may be brought up and camp established at the base of the peak, where the climbers may wait for favourable conditions of weather.

COLLECTING EXPEDITION TO BRITISH EAST AFRICA.—The *Journal* of the American Museum of Natural History (April, 1906) says that Mr. Richard Tjader, a traveller and hunter of wide experience, accompanied by Mr. Herbert Lang, one of the Museum preparators, left New York on March 1 on an expedition into British East Africa (Uganda) for birds and mammals, particularly the large mammals of the region, for the Museum collections. The